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Introduction

Poultrymen of southeastern Ohio furnish an important part of the total volume of eggs received by the West Virginia Poultry Producers Cooperative Association.

This association is spending considerable effort to acquaint its members with conditions necessary for the production of high quality eggs. The association is determined to teach its members that they must produce high quality eggs to make a success of marketing them on a graded basis. Leaders connected with the association are aware of the fact that failure to do this has been contributory to the decline of similar organizations.

Field work with each producer, carried on chiefly by the head grader, has been the principal method of getting him to produce good quality eggs.

Individual records of egg grades and conditions relating to production have been kept by the association since January 1, 1932.

Considerable need was felt for more specific and detailed information with which to approach the members. With this in mind a study of the grades of eggs delivered by Ohio poultry producers was made for the last six months of 1931. Some knowledge of the relationship between size of flocks and quality of production was desired.

An attempt was made in this study to determine the quality of eggs delivered in the past by individual flocks and by classes of similar sized flocks. This information is desired for correlation with production practices, and in addition, to

reveal what improvement, if any, has been made, what improvement is possible, and what it would mean to the producer.

No definite conclusions can be drawn from facts brought out in this preliminary report as the period covered is of too short a duration.

Source of Data - Period Covered

The data used were secured from the records of the association at its plant in Parkersburg, West Virginia, and covers the period beginning with the Pool of July 24, 1930 and ending December 31, 1931. Deliveries by a few Ohio members had been made previous to July 24, but beginning with this date more Ohio members delivered eggs to the association.

On December 31, 1931 there were approximately 82 Ohio members who had contracted to sell their eggs through the association. Seventeen of these members had delivered no eggs or too few by December 31 to include in this study.

Size of Flock is of Importance to the Association

In analyzing individual flocks it was first felt advisable to group the producers into classes in accordance with the number of hens they had per farm. Comparison of each individual producer with the average of his class as well as comparisons of classes of producers were computed.

Four classes were used - Class 1 including those who had under 126 hens, Class 2 with 126 to 225 hens, Class 3 with 226 to 325 hens, and Class 4 above 325 hens. Table 1.

Table 1. Classes of Different Sized Flocks and the Number of Producers in Each Class

Class number	Number of producers in each class	Size of flocks	Average number of birds per flock
1	9	Under 126	106
2	15	126 - 225	187
3	23	226 - 325	286
4	18	Over 325	510

Table 2 shows by classes the number of members, the number of hens owned, and the volume of eggs produced. Class 1 produced 2.9 per cent of the total volume of eggs; had 4.9 per-cent of the hens and 13.8 per cent of the members. Class 2 produced 14.6 per cent of the total volume of eggs; had 14.4 per cent of the hens and 23.1 per cent of the members. Class 3 produced 35.2 per cent of the eggs; had 33.7 per cent of the hens and 35.4 per cent of the members. Class 4 produced 47.3 per cent of the total volume of eggs; had 47 per cent of the hens and 27.7 per cent of the members.

It is quite apparent that the association should be pri-marily interested in the two larger classes of poultrymen. Classes 3 and 4, with 63.1 per cent of the members, had 80.7 per cent of the hens and deliver 82.5 per cent of the eggs.

Table 2. Relative Importance of Each of the Classes of Producers in Deliveries of Eggs to the Association

Class No.	No. in classes	% of members	No. of hens	Av. No. hens per member	% of total hens in each class	Volume of eggs (doz.)	% of total volume
1	9	13.8	995	106	4.9	1,231	2.9
2	15	23.1	2,810	187	14.4	6,213	14.6
3	23	35.4	6,590	286	33.7	14,973	35.2
4	18	27.7	9,175	510	47.0	20,178	47.3
Total	65	100.0	19,530	300	100.0	42,595	100.0

Analysis of Deliveries by Pools

The total dozens of eggs in the various grades were calculated by pools for each of the four classes. The per cent of Extras, Standards, Trades and Pewees was then calculated on the basis of these figures for each class by pools.

The proportions of Extras, Standards, Trades and Pewees by pools for each class are shown in Figures 1, 2, 3, and 4. It is apparent that the proportion of these grades by pools varies more in Classes 1 and 3 than in Classes 2 and 4. A pronounced seasonal fluctuation in the proportion of the various grades is evident in each of the classes. This seasonal fluctuation commences with a marked decrease in the per cent of Extras in late September along with the appearance of a noticeable per cent of Pewees, followed first by an increase in the per cent of Trades and then of Standards. By December the per cent of Extras had increased over the low per cent of Extras in October.

Figure 1. Average Per Cent of the Various Grades of Eggs by Pools Delivered by Class 1 Producers (Under 126 birds) July 24 to December 31, 1931

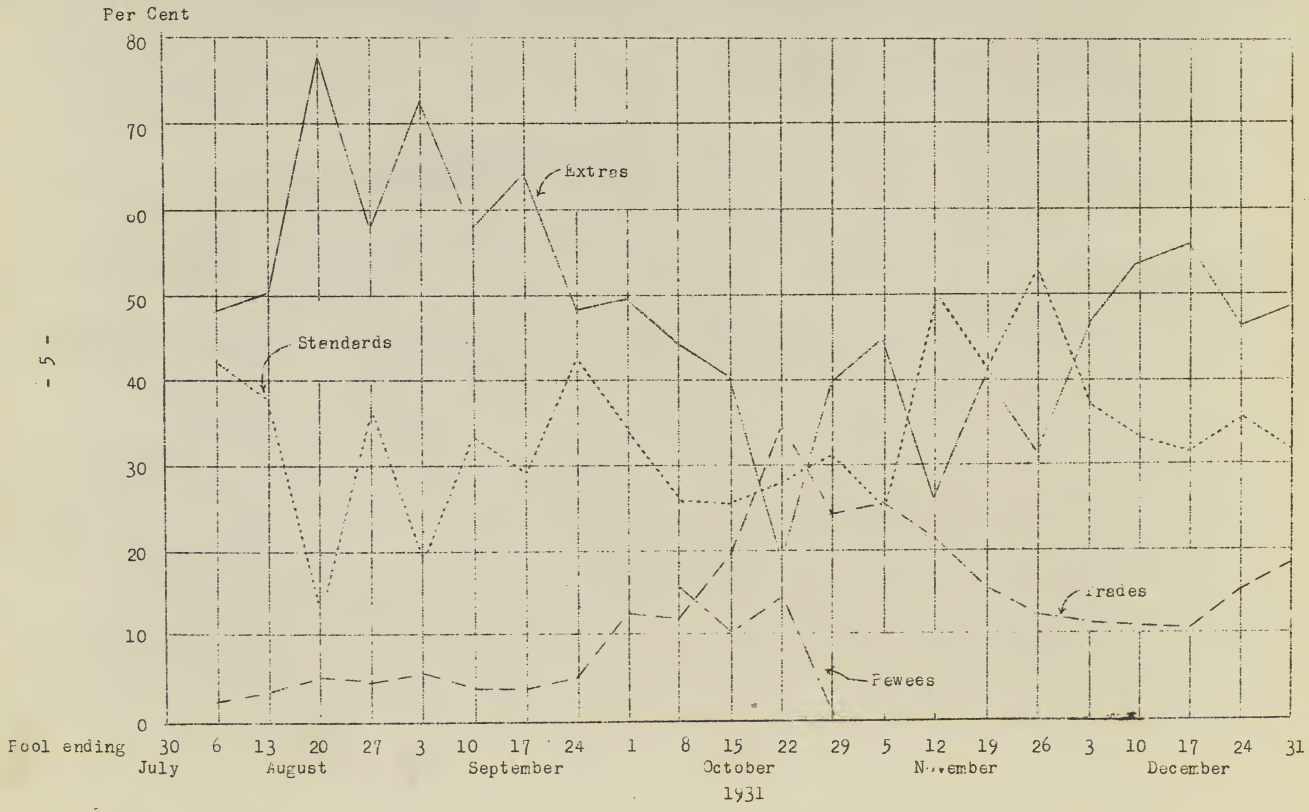


Figure 2. Average Per Cent of the Various Grades of Eggs by Pools Delivered by Class 2 Producers (126-225 birds) July 24 to December 31, 1931

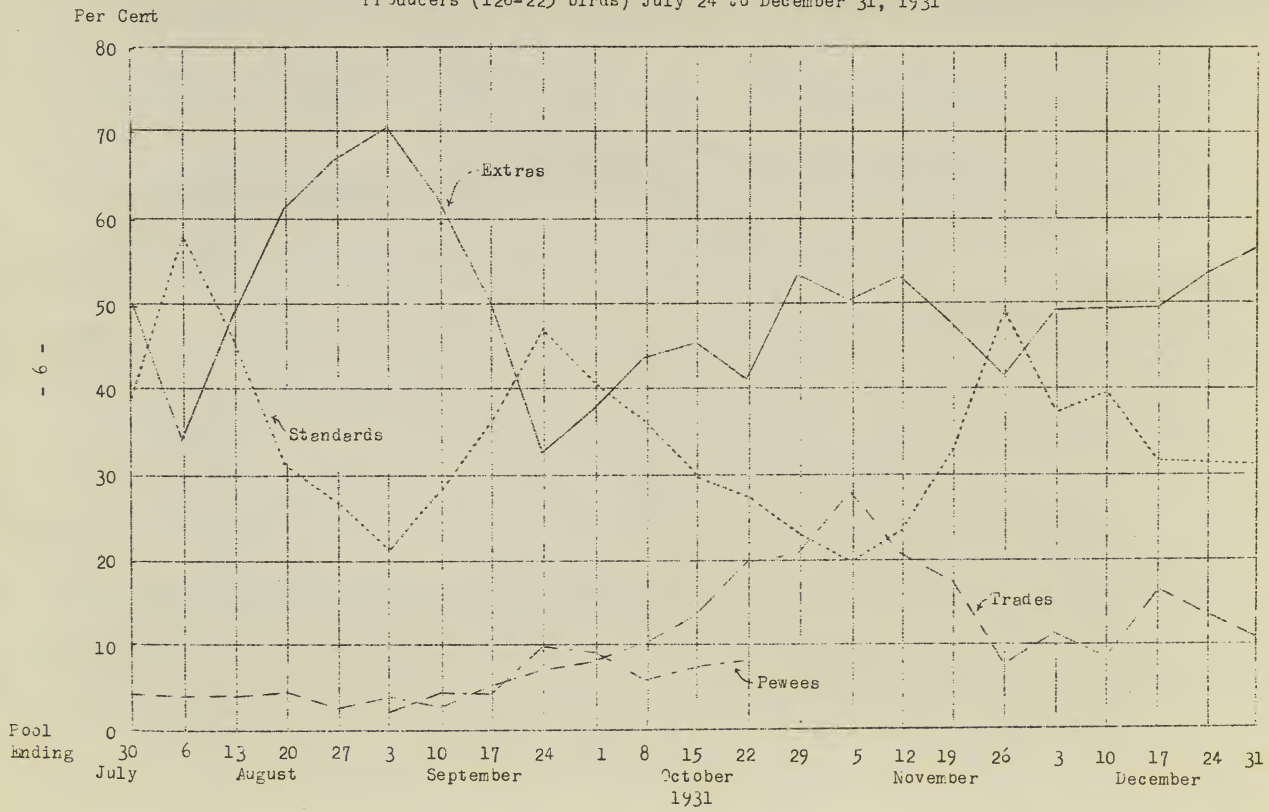


Figure 3. Average Per Cent of the Various Grades of Eggs by Pools Delivered by Class 3 Producers (226-325 birds) July 24 to December 31, 1931

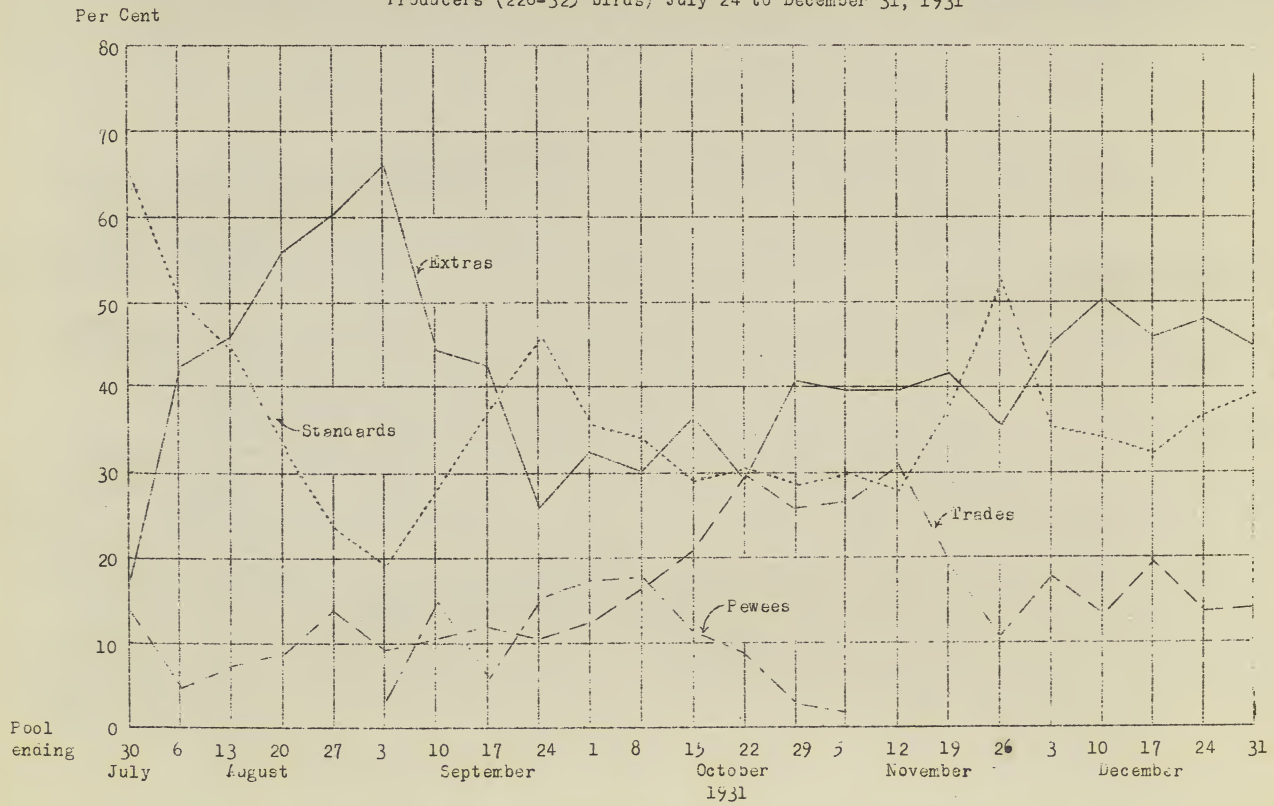


Figure 4. Average Per Cent of the Various Grades of Eggs by Pools Delivered by Class 4 Producers (Over 32 birds) July 24 to December 31, 1931

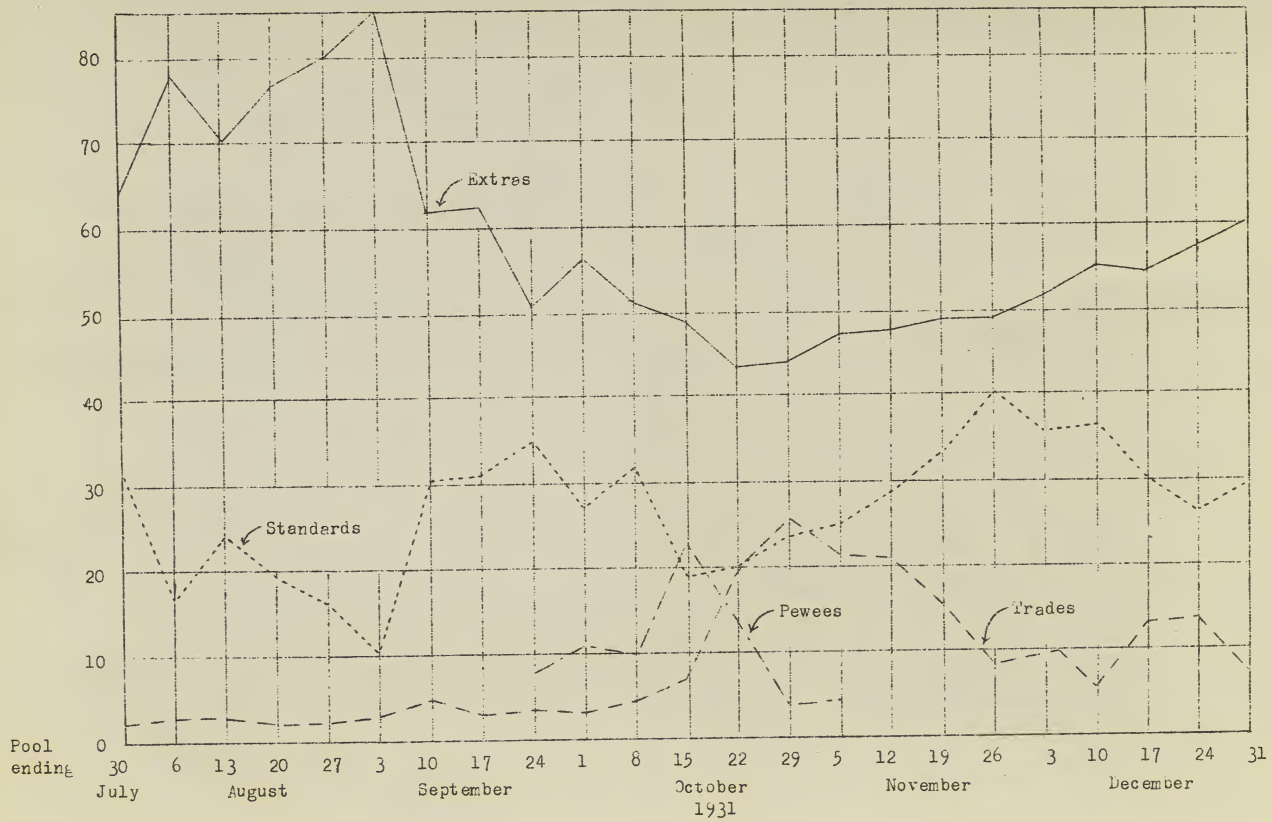
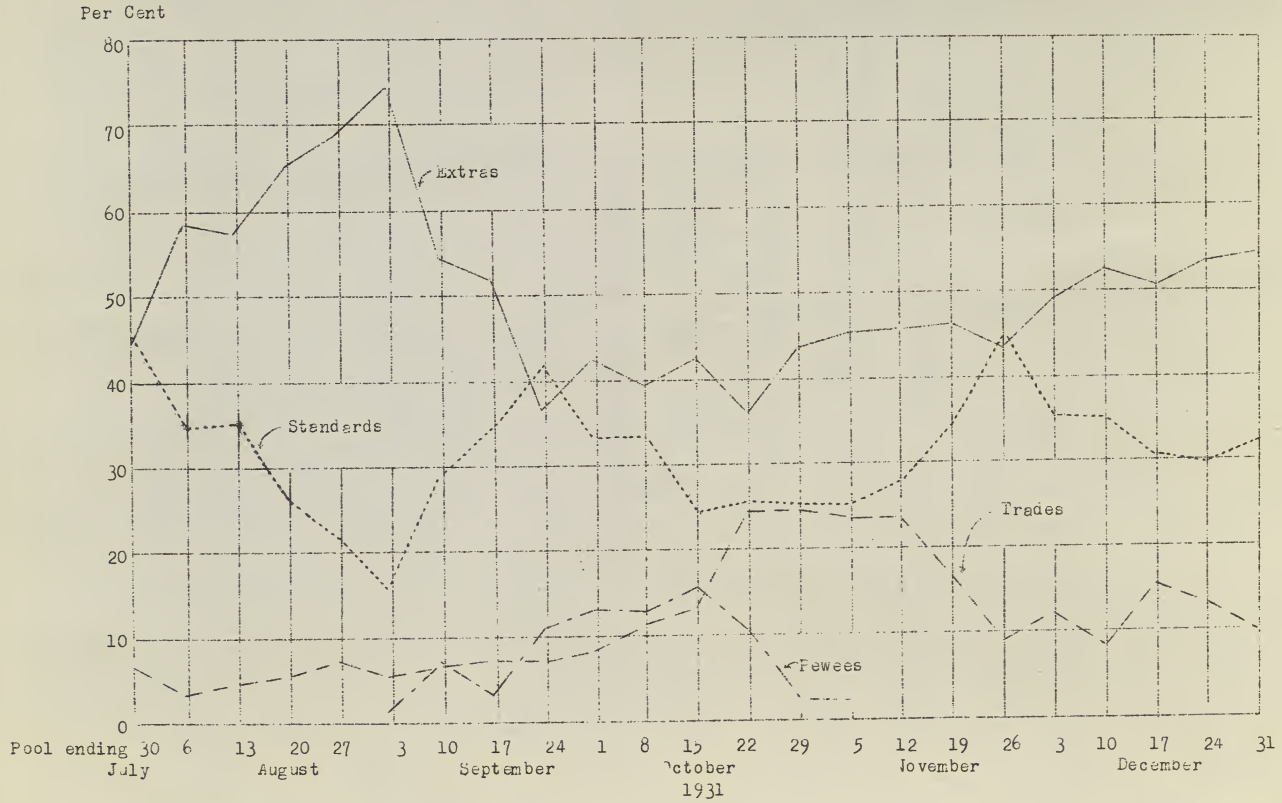


Figure 5. Average Per Cent of the Various Grades of Eggs by Pools Delivered by all Ohio Members, July 24 to December 31, 1931



The proportion of Extras, Standards, Trades and Pewees by pools for all classes taken together is shown in Figure 5. Here the seasonal fluctuation in the proportion of these grades is again brought out. The gradual climb of from 10 to 15 per-cent of the eggs from the Pewee grade to Trades, Standards and to Extras is distinctly shown.

The per cent of Extras fell from an average of about 60 per cent during the first two months to below 40 per cent in October. By December the number of Extras had increased to above 50 per cent.

Comparison of Classes

The number of dozens of all grades of eggs by classes is shown in Table 3. The per cent of the various grades is shown in Table 4.

Table 3. Number of Dozens of Eggs by Classes for all Grades as Delivered by Ohio Members to the West Virginia Poultry Producers Cooperative Association

Class	Extras	Standards	Trades	Pewees	Checks	Loss	Total
1	582	424	166	22	23	14	1,231
2	3,121	2,039	726	141	124	62	6,213
3	6,311	5,215	2,438	644	223	142	14,973
4	11,215	5,843	2,131	479	332	178	20,178
Total	21,229	13,521	5,461	1,286	702	396	42,595

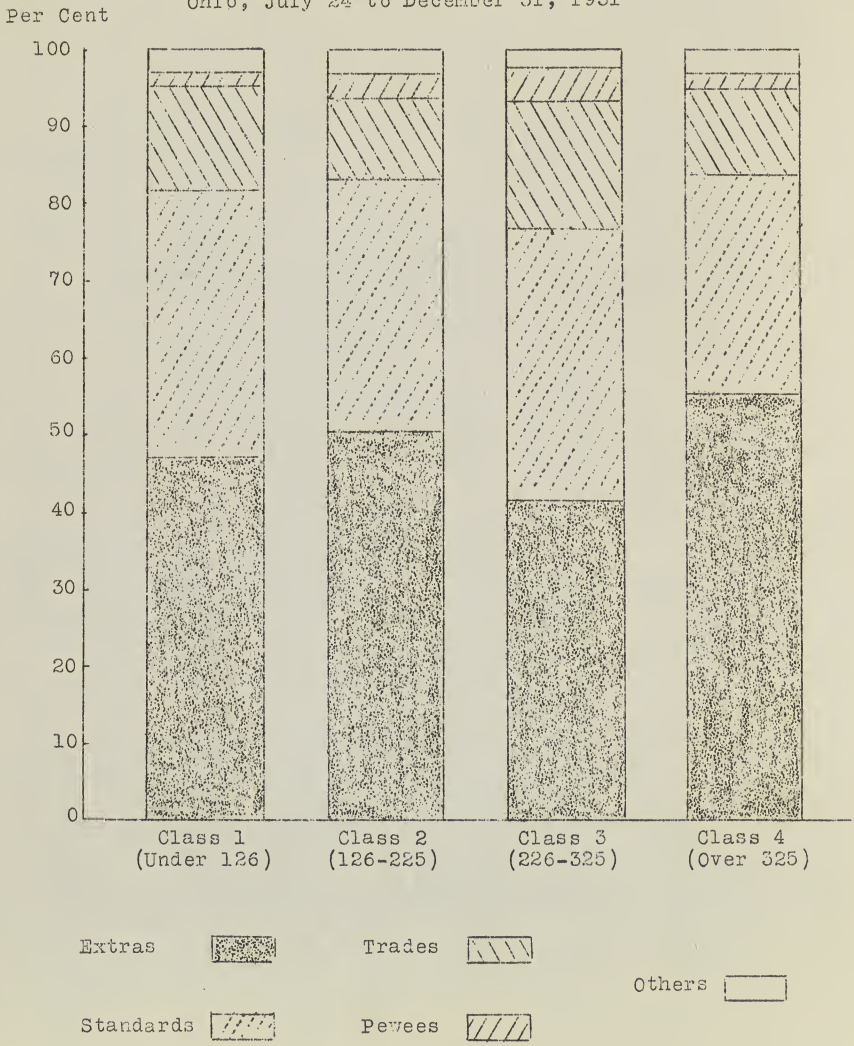
Table 4. Percentage of Eggs of Ohio Members Falling into Different Grades by Classes

Class	Extras	Standards	Trades	Pewees	Checks	Loss	Total
1	47.3	34.5	13.5	1.8	1.8	1.1	100.0
2	50.2	32.8	11.7	2.3	2.0	1.0	100.0
3	42.2	34.8	16.3	4.3	1.5	0.9	100.0
4	55.6	29.0	10.5	2.4	1.6	0.9	100.0
Average	49.8	31.7	12.8	3.0	1.7	1.0	100.0

Figure 6 shows a comparison of the per cent of the various grades of one class with another. The per cent of Extras in Class 1 was 49.8; Class 2, 50.2 per cent; Class 3, 42.2 per-cent; and Class 4, 55.6 per cent. The average per cent of Extras for the entire group was 49.8. Classes 1 and 3 are below the average for the entire group, while Classes 2 and 4 are above the average.

The fact that the per cent of Extras in Class 3 is low is very significant. Particularly is this true when this class of producers has the most members and produces such a large volume of eggs. This low per cent of Extras may be partly accounted for by the fact that in this class there was a higher percentage of Pewees and Trades than in other classes.

Figure 6. Average Per Cent of the Various Grades of Eggs Delivered by Classes of Members in Ohio, July 24 to December 31, 1931



Variations in the Quality of Eggs in Flocks of the Same Class

The spread in per cent of Extras between classes brings about the question of what variations might be found among different flocks in the same class. To determine the variation in each class the per cent of eggs in the various grades was calculated for each individual flock.

A wide variation was found in the per cent of Extras of individual flocks within all classes. The proportions of the various grades of eggs delivered by classes for the high and low producers are shown in Table 5.

Table 5. Percentage of Eggs Delivered by Grades for the High and Low Producers and the Average by Classes

	Extras	Stds.	Trades	Pewees	Checks	Loss	Total Dozens
Class 1							
High	62.9	27.1	8.8	-	0.5	0.7	109
Low	15.8	41.6	29.6	9.2	1.9	1.9	96
Average	47.3	34.5	13.5	1.8	1.8	1.1	1,231
Class 2							
High	81.3	9.7	7.1	-	1.2	0.7	518
Low	22.7	37.8	34.9	2.3	1.2	1.1	247
Average	50.2	32.8	11.7	2.3	2.0	1.0	6,213
Class 3							
High	90.2	5.7	1.8	-	1.3	1.0	222
Low	6.5	45.8	44.9	0.9	0.8	1.1	437
Average	42.2	34.8	16.3	4.3	1.5	0.9	14,973
Class 4							
High	77.8	18.5	2.3	-	1.0	0.4	242
Low	25.4	38.7	17.3	17.0	0.9	0.7	395
Average	55.6	29.0	10.5	2.4	1.6	0.9	20,178

The wide variation in the per cent of Extras of individual flocks, in the various classes, gives an opportunity for further improvement in quality. This is particularly important in the larger sized flocks.

Extent and Value of Improvement Possible

In determining what improvement could be made by the producers and what this would mean to them financially, three calculations were made. First, what the poorest producer in each of the classes actually received in dollars for all of his eggs during the period, and what they brought per dozen. Second, what the poorest producer in each of the classes would receive in dollars and also in price per dozen if his grades had been equal to the average of his class. Third, what the poorest producer in each of the classes would receive in dollars and also in price per dozen if his grades had been equal to the best producer in his class.

The results from these calculations will be found in Table 6. The poorest producer in Class 1 would have received $2.83 more during the period if he had produced eggs equal in quality to the average of his class. This would have meant 2.9¢ more per dozen for his eggs, which, when figures on a per cent basis would have been an increase of 12.9 per cent. If his grades had been equal to the grades of the best producer in his class, he would have received $4.11 more, which would have been an increase of 4.3¢ per dozen, or 18.7 per cent over what he actually received.

Table 6. Actual Returns to Poorest Producer of Each Class and Possible Returns Calculated on Basis of the Average Quality and Highest Quality for Respective Classes

	Returns to Poorest Producer in Dollars		What Poorest Producer would Receive if his Grades were equal to the average of his Class		Increased Returns of the Average over the Poorest by Classes			What Poorest Producer would Receive if his Grades were Equal to the Best in his Class		Increased Returns of the Best over the Poorest		
Class	Total	Price per Dozen	Total	Price per Dozen	Dollars	Price per Dozen	Per Cent of Increase	Total	Price per Dozen	Total Inc. in Dollars & Cents	In Price per Dozen	Percent Increase
1	$21.94	$0.227	$24.77	$0.257	$2.83	$0.029	12.9	$25.05	$0.27	$4.11	$0.043	18.7
2	58.69	0.238	63.75	0.258	5.06	0.021	8.6	63.75	0.278	10.06	0.041	17.1
3	89.53	0.205	111.00	0.254	21.47	0.049	24.0	124.14	0.284	34.61	0.079	38.7
4	90.88	0.23	103.46	0.262	12.58	0.032	13.8	110.42	0.28	19.54	0.05	21.6

In Class 2, the poorest producer would have received $5.06 over his actual returns had he produced eggs equal in quality to the average of his class. This would have been 2.1¢ more per dozen, or an increase of 8.6 per cent. He would have received $10.06 more than his actual returns had he produced eggs equal in quality to the best producer in his class. This would have meant 4.1¢ more per dozen, or an increase of 17.1 per cent.

In Class 3, the poorest producer would have received $21.47 over his actual returns had he produced eggs equal in quality to the average of his class. This would have been 4.9¢ more per dozen or an increase of 24.0 per cent over what he actually received. He would have received $34.61 more if he had produced eggs equal in quality to the best producer in his class. This would have been an increase of 7.9¢ per dozen, or 38.7 per cent more than he actually received.

In Class 4, the poorest producer would have received $12.58 more than he actually received had he produced eggs equal in quality to the average of his class. This would have meant an increase of 3.2¢ per dozen, or 13.8 per cent over what he actually received. If he had produced eggs of quality equal to the best producer in his class he would have received $19.54 more in returns, which would have meant an increase of 5¢ per dozen, or 21.6 per cent.

Table 7 shows the increased returns possible to the poorer producers, calculated on a per bird basis. By producing eggs equal in quality to the average of his class the poorest producer could increase his returns per bird by 2.8¢ in Class 1; 3.4¢ in Class 2; 8.6¢ in Class 3; and 2.8¢ in

Class 4. By producing eggs equal in quality to the best producer in his class the poorest producer could increase his returns per bird by 4.1¢ in Class 1; 6.7¢ in Class 2; 13.8¢ in Class 3, and 4.3¢ in Class 4. The flocks of the best producers in Classes 1, 2 and 3 are larger than those of the poorest producers in their respective classes. In Class 4 the flock of the best producer is considerably smaller than that of the poorest producer in this class.

Table 7. Number of Birds in Poorest and Best Flock of Each Class; Increased Returns per Bird Possible for Poorest Producer in Each Class

Class	No. of birds in poorest flock	No. of birds in best flocks	Increased returns of the average producer over the poorest		Increased returns of the best producer over the poorest	
			Total	Per Bird	Total	Per Bird
1	100	125	$ 2.83	$ 0.028	$ 4.11	$ 0.041
2	150	200	5.06	0.034	10.06	0.067
3	250	300	21.47	0.086	34.61	0.138
4	450	350	12.58	0.028	19.58	0.043

SUMMARY

1. The West Virginia Poultry Producers Cooperative Association is promoting a type of field work with a definite aim toward the production of better quality eggs by its members.
2. There is a pronounced seasonal fluctuation in each of the classes in the proportion of the eggs falling in the various grades.
3. The per cent of Extras by pools for all the classes together fluctuated from an average of about 60 per cent during the first two months to below 40 per cent in October, and back to above 50 per cent Extras in December.
4. The quality of eggs produced has no definite relation to the size of the flock.
5. The group of poultrymen with flocks of 226 to 325 hens is producing eggs of quality definitely below that of the average for Ohio members.
6. A wide variation exists in the per cent of Extras delivered by producers in each class.
7. Much improvement in quality of eggs produced is possible with many of these producers.
8. Any improvement in quality of eggs will add materially to the returns of these producers.
9. The greatest opportunity to improve the quality of the entire association is found in the flocks of from 226 hens and above which contribute 82.5 per cent of total eggs delivered.